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Typical Little Egrets *Egretta garzetta* mix with Dimorphic Egrets *Egretta dimorpha* on open coast in Tanzania

Summary

A mixed flock of Little and Dimorphic Egrets (*Egretta garzetta* and *Egretta dimorpha*, respectively) observed on a coral reef in southern Tanzania in August suggests that the Little Egret might occur on East African open coast more often than currently thought. One reason for this could be that the migrants join the resident Dimorphic Egret population. Examination of photographs for the subtle morphological differences between the two forms also suggests the occurrence of hybrids, which somewhat lends support to the idea of one species for the taxonomically controversial, Little-Egret-like birds that occur in Africa.

The Little Egret-like birds that occur in Africa are taxonomically very controversial (Hancock & Kushlan 1984; see a related article in this *Scopus* issue). They are variously ascribed to four forms in the genus *Egretta*: *garzetta* (the typical Little Egret), *gularis* (Western Reef Heron, western race), *schistacea* (Western Reef Heron, eastern race), and *dimorpha* (Dimorphic or Mascarene Egret). These taxa are also sometimes considered as species or subspecies; indeed, considerable morphological variability exists among assumed representatives of the same form (see Turner 2010). The existence of intermediate phenotypes, as well as occurrence of mixed pairs, e.g., *garzetta* with *gularis* and *garzetta* with *schistacea* (Hancock & Kushlan 1984, p. 132), suggests a case of interbreeding races within one species. Moreover, the assumed differences in geographical range, with *garzetta* being mainly inland and *gularis*, *schistacea*, and *dimorpha* mainly coastal, have been challenged by the finding of *schistacea* mixed with *garzetta* at Lake Turkana in Kenya's interior, besides individuals that looked like typical *garzetta* mixed with

apparent *dimorpha* and *schistacea* along the East African coast (Hancock & Kushlan 1984, p. 129). Kushlan & Hancock (2005, p. 192) regretted that the hypothesis in their previous book of there being one polytypic species has not been tested adequately.

During my stay close to a beach (S 08°54', E 39°31') near Kilwa Masoko, Tanzania, from 23 to 26 August 2008, I observed the birds that were foraging in the shallow water on the coral reef several times per day. The place was in the range of *dimorpha*, and while numerous coastal birds in Tanzania have been ascribed to this taxon (Kushlan & Hancock 2005, p. 195) some recent publications assume *garzetta* to be absent (Sinclair & Ryan 2003) or rarely occurring (Zimmerman *et al.* 2005) on open coast in East Africa. Egrets sparsely foraged among flocks of waders, but while resting in the middle of the day, or flying to roost at sunset, they formed one group, thus permitting reliable counts. Their maximum number was 33, of which 31 belonged to the white morph and only two to the dark morph. This obvious disproportion—Hancock & Kushlan (1984) found a predominance of dark individuals on a coral reef in Kenya, made me suspect that a proportion of the white birds may have been migrants, just like the many waders that were foraging in the same place. While *dimorpha* is generally seen as largely sedentary, *garzetta* is partly migratory, regularly moving between Europe and Africa. I took photographs to aid my search for the subtle morphological differences that distinguish *garzetta* from *dimorpha*. Unfortunately, while literature gives criteria to distinguish between *garzetta* and *gularis*, or *schistacea*, in the field (e.g., Dubois & Yésou 1995), *dimorpha* is a little investigated form and its white morph is considered very similar to *garzetta* (see also Turner 2010).

Therefore I searched the Internet for photographs of sure representatives of *dimorpha* from a region where only this form occurs, Madagascar. As far as body proportions are concerned, *dimorpha* is more similar to *gularis/schistacea* than to *garzetta*, whereas its largely black bill and boldly patterned black legs and yellow feet recall *garzetta*. Figure 1 permits direct comparison between the two forms I observed in Tanzania. The most evident difference is in bill thickness, *garzetta* (in the foreground) having a slimmer and straighter bill. As both the birds were facing the breeze while resting, their heads were oriented in the same direction, and due to the position of the photographer, both were in full profile. This permitted an approximate bill-to-tarsus ratio to be calculated, which was about 0.80 for *garzetta* (similar to Dubois & Yésou 1995) and more than 0.90 for *dimorpha*. A shorter neck and a seemingly more slender body due to a longer outer wing are additional suggested features of *garzetta*. The two birds in Figure 1 also differ in their resting postures: *garzetta* holds a more upright stance than *dimorpha*, the latter being more similar to *gularis/schistacea* in this respect (see Dubois & Yésou 1995). Figure 2 shows the intermediate traits of a possible hybrid: a slim, yet rather decurved, bill (in full profile again, as this bird was facing just the opposite direction from the breeze) and an intermediate bill-to-tarsus ratio. Soft-part colours may be less

valid field marks. Although more yellow often appears on the lores and feet (and tarsometatarsus to a varying degree) of *dimorpha*, which would agree with the ascription of the birds in my photographs, both *dimorpha* and *garzetta* do show the entire variation from dull greenish to bright red depending on season.



Figure 1. Typical Little Egret (left) and Dimorphic Egret resting on the coral reef at Kilwa Masoko, Tanzania on 25 August 2008.



Figure 2. Possible Little-Dimorphic Egret hybrid with migrant waders (Common Greenshank *Tringa nebularia* and Grey Plover *Pluvialis squatarola*) in the background at Kilwa Masoko, Tanzania on 25 August 2008.

My observations lend support to Hancock & Kushlan's (1984) hypothesis that the typical Little Egret, the Western Reef Heron and the Dimorphic Egret belong to a single polytypic species, though the actual existence of hybrids and their fertility remains to be ascertained. The fact that all the coastal egrets of Africa show substantial proportions of dark-plumaged birds, while on

the contrary, few traces of genes for dark plumage appear in the continent's interior suggests that interbreeding must have some limits. Different breeding cycles and behaviour of migratory and the resident birds, and the possibility of some selection against dark morphs could account for the limits. At the very least, the occurrence of migratory and resident populations together might offer an explanation for the confusing morphology, distribution, and taxonomy of these birds.

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The *Egretta garzetta* complex in East Africa: A case for one, two or three species

Egretta egrets within the *garzetta*, *schistacea* and *dimorpha* complex that occur in East Africa have presented identification and taxonomic problems for decades, and continue to do so. The relationship between what are referred to as Little Egret (comprising races *garzetta*, *nigriceps* and *immaculata*), the Dimorphic Heron (*dimorpha*) and Western Reef Heron (*gularis* and *schistacea*) has been a matter of great controversy (Hancock & Kushlan 1984; see a related article in this *Scopus* issue). Here, I review both the earlier treatment of these closely related birds, and the forms occurring in East Africa today, hoping that this will move us closer to the point where a consensus concerning the taxonomic status of all can be reached.

The following four forms comprise the *Egretta garzetta* complex:

- i. *E. g. garzetta* is white plumaged with black bill and legs, yellow feet and blue-grey lores. When breeding, feet and lores become bright pink,